

In the Claims:

Claims 10, 16, 21, amend to read as follows:

Sub D1  
B1

10. (Amended) An apparatus for determining the trapping of pathogen by antibodies deposited in a fluidic channel, comprising:  
a fluidic channel having at least one pair of spaced electrodes localized along a length of said fluidic channel,  
antibodies located on said spaced electrodes,  
means for producing an electric field across said spaced electrodes, and  
an impedance sensor for measuring impedance between said spaced electrodes.

B2

16. (Amended) A sensor using impedance measurements to detect the presence of pathogens attached to antibodies, comprising:  
a microfluidic device having at least one microchannel therein,  
spaced electrodes located on a surface along a length of said microchannel,  
antibodies located on said spaced electrodes,  
an AC or DC power supply for producing an electric field across said spaced electrodes, and  
means for measuring impedance between said spaced electrodes.

B3

21. (Amended) The sensor of Claim 16, wherein the at least one pair of spaced electrodes is formed within the fluidic channel.

Please add the following Claims:

22. The apparatus of Claim 1, wherein said spaced electrodes are located in a bottom surface of said fluidic channel.

B4  
Sub C3

23. The sensor of Claim 16, wherein said spaced electrodes are located in a bottom surface of said at least one microchannel.

24. In an apparatus for determining the trapping of pathogen by antibodies deposited in a fluidic channel, the improvement comprising:

sub  
D1  
at least one pair of spaced electrodes located on a surface and along a length of said fluidic channel,

antibodies located on said spaced electrodes,

means for producing an electric field across said spaced electrodes, and

C3  
an impedance sensor for measuring impedance between said spaced electrodes.

25. The improvement of Claim 24, wherein said surface is a bottom surface of said fluidic channel.

26. The improvement of Claim 24, additionally including at least another pair of spaced electrodes having an electric field thereacross and provided with antibodies thereon.

B4  
cont  
27. The improvement of Claim 26, wherein said pairs of spaced electrodes constitute adjacent fingers of an interdigitated electrode formed on said surface of said fluid channel.

28. The improvement of Claim 27, wherein said interdigitated electrode is at least partially located on a bottom surface of said fluidic channel.